



DEVELOPMENT OF AMENDMENTS TO RULES CONCERNING SULFUR DIOXIDE EMISSION LIMITATIONS FOR CITIZENS GAS & COKE UTILITY

#05-118(APCB) / LSA Document #05-118

Update since Preliminary Adoption

Additional language regarding record keeping and inclusion of a construction permit based H₂S limit on Battery 1 were added to the rule. These changes are needed for this rule to be approved by U.S. EPA as part of the state implementation plan (SIP).

Overview

This rulemaking amends the sulfur dioxide (SO₂) emission limitations by combining the three limits for Citizens Gas & Coke Utility (CG & CU) located in Indianapolis, Indiana.

Citations Affected

Amends: 326 IAC 7-4-2.

Affected Persons

CG & CU and citizens living and working in the vicinity of this source.

Reason or Reasons for the Rule

This rulemaking will combine into one limit the SO₂ emission limitations at 326 IAC 7-4-2 for each of the three coke batteries (E, H, and No. 1) at CG & CU.

Economic Impact of the Rule

There is no cost to CG & CU due to these rulemaking changes.

Benefits of the Rule

CG & CU will benefit from having an emission limit with which the source can consistently comply. From the perspective of citizens, the rulemaking will not result in an increase in SO₂ emissions.

Description of the Rulemaking Project

CG & CU has requested that IDEM combine into one limit the SO₂ emission limitations in 326 IAC 7-4-2 for each of the three coke batteries (E, H, and No. 1). CG & CU has requested a combined limit for the pounds per hour limit and the pounds per ton of coal charged limit. These limits govern the emissions from the coke oven battery underfire combustion stacks. Coke oven gas is the fuel used for underfire, which heats the batteries. All of the coke oven gas used for the underfire at the facility is desulfurized, i.e., hydrogen sulfide (H₂S) is removed, in the iron oxide boxes. The sulfur content of the coke oven gas combusted at E, H, and No. 1 battery underfire is the same, since all coke oven gas is desulfurized to the same concentration. The current pound per ton of coal charged emission limitations for batteries E, H, and No. 1 are seventy-nine hundredths pounds of sulfur dioxide per ton of coal charged (0.79 lb SO₂/ ton coal), seventy-nine hundredths pounds of sulfur dioxide per ton of coal charged (0.79 lb SO₂/ ton coal), and twenty-three hundredths pounds of sulfur dioxide per ton of coal charged (0.23 lb SO₂/ ton coal),

respectively. The current pounds per hour emission limitations for batteries E, H, and No. 1 are thirty-one and sixteen hundredths pounds of sulfur dioxide per hour (31.16 lbs SO₂/hr), thirty-one and sixteen hundredths pounds of sulfur dioxide per hour (31.16 lbs SO₂/hr), and fifteen and seven-tenths pounds of sulfur dioxide per hour (15.7 lbs SO₂/hr), respectively. The combined pounds per hour limit is the sum of the three limits for each coke battery. The combined pounds of SO₂ per ton of coal limit is based on the coal charging capacity of each battery. The combined limit is dependent on the number of batteries in operation.

CG & CU uses iron oxide boxes to desulfurize the coke oven gas from all three coke batteries. Iron oxide boxes remove H₂S from the coke oven gas stream, which is the predominant sulfur compound found in coke oven gas. The construction permit for battery No. 1 has a limit of twenty grains of hydrogen sulfide per hundred standard cubic feet (20 grains H₂S/100 scf). However, there are a number of organic sulfur compounds present in trace quantities in coke oven gas, such as carbon disulfide, carbonyl sulfide, and thiophenes. If H₂S was the only sulfur compound in the coke oven gas the H₂S limit of 20 grains H₂S/100 scf would be equivalent to the current SO₂ limit for battery No. 1 of fifteen and seven-tenths pounds per hour (15.7 lbs/hr). CG & CU is not able to consistently meet the SO₂ limit for battery No. 1 and the only way to address this would be to reduce the amount of sulfur compounds in the coke oven gas. Currently technology is not available to remove the organic sulfur compounds in the gas stream and it would be cost prohibitive to reduce the H₂S levels in the coke oven gas by installing additional iron oxide boxes. CG & CU has submitted information to IDEM demonstrating that so long as CG & CU complies with its H₂S limit, the variation in the level of organic sulfur compounds is not significant enough to threaten the SO₂ limit. For these reasons CG & CU is requesting a combined SO₂ limit for the battery combustion stacks, while retaining the twenty grains of hydrogen sulfide limit of 20 grains H₂S/100 scf. Currently the H₂S present in the coke oven gas is measured on a

daily basis. IDEM is proposing to include a daily fuel analysis and sampling requirement in the rule. Modeling conducted by CG & CU and reviewed by IDEM, demonstrates that the combined limit will not cause an exceedance of the National Ambient Air Quality Standards (NAAQS) in the vicinity of the plant.

Scheduled Hearings

First Public Hearing: June 7, 2006, Room A, Indiana Government Center South, 402 West Washington Street, Indianapolis, Indiana.

Second Public Hearing: October 19, 2006.

Consideration of Factors Outlined in Indiana Code 13-14-8-4

Indiana Code 13-14-8-4 requires that in adopting rules and establishing standards, the board shall take into account the following:

- 1) All existing physical conditions and the character of the area affected.
- 2) Past, present, and probable future uses of the area, including the character of the uses of surrounding areas.
- 3) Zoning classifications.
- 4) The nature of the existing air quality or existing water quality, as appropriate.
- 5) Technical feasibility, including the quality conditions that could reasonably be achieved through coordinated control of all factors affecting the quality.
- 6) Economic reasonableness of measuring or reducing any particular type of pollution.
- (7) The right of all persons to an environment sufficiently uncontaminated as not to be injurious to:
 - (A) human, plant, animal, or aquatic life; or
 - (B) the reasonable enjoyment of life and property.

Consistency with Federal Requirements

The new rules are consistent with federal rules.

Rulemaking Process

The first step in the rulemaking process is a first notice published in the *Indiana Register*. This includes a discussion of issues and opens a first comment period. The second notice is then published which contains the comments and the department's responses from the first comment period, a notice of first

meeting/hearing, and the draft rule. The Air Pollution Control Board holds the first meeting/hearing and public comments are heard. The proposed rule is published in the *Indiana Register* after preliminary adoption along with a notice of second meeting/hearing. If the proposed rule is substantively different from the draft rule, a third comment period is required. The second public meeting/hearing is held and public comments are heard. Once final adoption occurs, the

rule is reviewed for form and legality by the Attorney General, signed by the Governor, and becomes effective 30 days after filing with the Secretary of State.

IDEM Contact

Additional information regarding this rulemaking action can be obtained from Susan Bem, Rules Development Section, Office of Air Quality, (317) 233-5697 or (800) 451-6027 (in Indiana).